CALIFORNIA
ENERGY
COMMISSION

CALIFORNIA GEOTHERMAL SUMMIT
FINAL PROCEEDINGS

Sacramento, California
May 20, 2004

GEOPOWERING THE WEST

August 2004
500-04-064

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Proceedings summarized under
a contract with the
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1. OVERVIEW

On May 20, 2004, the California Energy Commission (Energy Commission) and the US Department of Energy's (DOE) GeoPowering the West (GPW) Initiative hosted the "California Geothermal Summit". The meeting was held at the California Energy Commission in Sacramento, California. The purpose of the meeting was to mobilize the network of geothermal energy stakeholders in California to:

- Meet Renewable Portfolio Standard goals,
- Address local, regional and industry needs, and
- Create sustained economic and environmental benefits to California.

The objectives of the meeting were carried out through presentations to meeting participants and facilitated discussion sessions. The following sections summarize these presentations and discussions. Over 120 people pre-registered for the meeting, and over 140 people attended. The meeting agenda is provided as Appendix A and the attendee sign-in list is provided as Appendix B. Copies of all the presentations provided at the Summit can be found on the Energy Commission web site at:

www.energy.ca.gov/geothermal/documents/

2. PRESENTATION SUMMARIES

The meeting commenced at 9:00 AM with Elaine Sison-Lebrilla (Energy Commission) welcoming the participants to the California Geothermal Summit and providing an overview of the Energy Commission's GRDA and PIER programs that support the state's renewable energy goals and renewable energy portfolio standard. Elaine then provided an overview of the workshop and discussed its goal of being an initial step in the development of a statewide geothermal collaborative.

Next, Roy Mink (DOE) provided overviews of the DOE Geothermal Program and the GeoPowering the West Initiative. In his presentation, Roy discussed geothermal application areas (power production and direct use applications), the current and near-term capacity of geothermal power production, the resource potential, and DOE's goals of decreasing geothermal production costs via improved technologies, reduced drilling costs, and expanding the resource base. He also discussed strategic directions for the program emphasizing:

- Enhanced geothermal systems;
- Resource assessment and exploration technology;
- Advanced drilling technology;
- Power systems; and
- Education and outreach.

In addition, Roy discussed a number of the goals of the program, which included:

- Exploration: double the exploration success rate from 20% in 2000 to 40% by 2010;
- Drilling: reduce cost of drilling 25% by 2008 from costs in 2000; and
- Power systems: reduce capital cost by 20% by 2010.

Roy concluded his remarks by detailing the factors influencing future geothermal development: 1) land access and permitting, 2) attainment of a production tax credit for geothermal, and 3) renewable portfolio standards (RPS).

Next, Energy Commission Commissioner John Geesman provided remarks to the participants on Energy Commission's perspectives on renewable energy. In his remarks he said that California is irrevocably committed to developing the geothermal resource as a primary resource for the state's future. As an example, he pointed out the need for increased generation capacity in the state, and that by the year 2030 the population of California will be approximately 48 million while the existing generation fleet is aging. He mentioned that while the Commission has permitted 18,000 MW of new capacity over the last

5-6 years, only half of it has been built. He concluded his remarks by highlighting that the "loading order" of new resources to come on line in California is first, all cost-effective energy conservation measures, and then renewables - with the goal of 20% renewables by 2010 and 30% by 2020. The remainder of Commissioner Geesman's time was spent answering questions from the audience; a complete summary of all questions and answers (for all the speakers) is included in Appendix C of these proceedings.

Next, Tim Tutt of the Energy Commission discussed the implementation of the California RPS. Tim began his presentation with a summary of the goals of the RPS, and noted that California currently has about 11% renewable resources in the system mix applicable to the RPS. He then focused on the role of the Energy Commission in implementing the RPS, including:

- Certifying eligible resources;
- Establishing criteria for incremental output from existing facilities;
- Making supplemental energy payments (SEP) using public goods charge (PGC) funds ; and
- Designing and implementing an accounting system to track and verify RPS compliance (WREGIS - Western Renewable Energy Generation Information System).

Tim also mentioned Energy Commission's role in developing the RPS guidelines that were adopted on April 21 and revised on May 19, as well as its development of an RPS eligibility guidebook and a program guidebook. Tim then focused specifically on the role of geothermal energy eligibility as it applies to the RPS, noting that pre September 26, 1996 resources are not eligible for SEPs and that resources developed between September 26, 1996 and January 1, 2002 are eligible for the RPS but not for SEPS. With respect to incremental geothermal (defined as a substantial capital project that results in replaced generating equipment or increased steam converted to energy), he noted that projects completed after September 26, 2006 would be eligible for the RPS. In closing, he provided several key issues impacting RPS implementation including, 1) transmission system adequacy, 2) maintaining adequate PGC funds for SEPs, 3) the role of consumer owned utilities in meeting RPS goals, 4) implementation in a timely manner, 5) goals beyond 2010, and 6) developing WREGIS.

Dan Adler of the California PUC then addressed the audience and provided a presentation on "Connecting Geothermal to the California Grid" from a regulatory perspective. He noted that FERC requires up-front funding for network upgrades to transmit power from new sources, and commented on the current scenario of ratepayers incurring the risk of renewable power plants coming on-line with respect to transmission upgrades. He highlighted the fact that the Tehachapi wind resource area is the first opportunity to create new methods of transmission planning and development. He concluded his remarks with the point that, ultimately, the first RPS solicitation will provide insight into how special provisions are accounted for in transmission planning and development.

Next, Colin Williams of the US Geological Survey provided a summary of the geothermal resource in California. Colin began his remarks by addressing the geothermal resource potential in the state and an overview of the geologic processes (progression of tectonic plate movement) that result in geothermal resources. He mentioned that recent studies have indicated greater than 5,000 MW of potential from identified conventional resources, and that while this is less than previously estimated - it is still the largest resource potential in the US. He also mentioned that great progress has been made in the area of power project development from resources at lower temperatures and depths. Then, Colin outlined future directions for USGS in supporting resource mapping and identification including: 1) conducting comprehensive resource assessments (combining national, state, and local information in a single coherent product), 2) confirmation of resources, 3) refined land use plans, 4) exploration, 5) continuing development of EGS technology, and 5) new and unconventional applications (i.e., hydrogen production, local use in urban areas).

Jim Lovekin of Geothermix then provided a presentation on a PIER funded study entitled, " New Geothermal Site Identification and Qualification". This detailed assessment documented the generation

capacities of major geothermal resource areas in California as well as focused on how to get these resources to market. In highlighting this study, Jim, provided some background on the methodology and assumptions utilized as well as comparisons of the results to previous studies. The results from this study indicated that the capital costs of geothermal resource development (power production) are:

- $3,100 / kW (overall average of 64 projects in the study area)
- $2,950 / kW in California (average)
- $3,400 / kW in Greater Reno and the Dixie Corridor; and that there is
- 2500 MW of resource potential in California below the study's average cost of $3,100 / kW, and
- 2000 MW of resource potential in California below the state average of $2,950 / kW.

The results of this study will be incorporated into the PIER geothermal database.

Next, George Simon of the Energy Commission provided some brief remarks to the audience as the moderator of a panel session entitled, "Geothermal Challenges and Opportunities in California". In his opening remarks, George highlighted three key issues facing geothermal development in the state, namely: 1) transmission constraints, 2) access to capital, and 3) environmental characteristics of the geothermal resource, and the need to come together as a group to address this issue.

Leading off the panel session was Karl Gawell of the Geothermal Energy Association providing the industry perspective on "challenges and opportunities". Karl began by commenting how impressed and excited he is about what is going on in California. He noted that the 5,000 MW is there and the question is, "How do we move forward and develop it?". One of the answers to this question is that we need the right set of risks and rewards, and in turn we need to be able to move in a timely fashion in order to develop economically viable projects. Further, he mentioned that we need to 1) make geothermal a priority at all levels of government and break through bureaucracies, and 2) have the right economics and get the geothermal Production Tax Credit. He concluded his remarks by saying that we are on the right track in California as evidenced by this meeting and the cross section of government and industry in attendance.

The next speaker of the panel session was Sean Hagerty from the Bureau of Land Management providing the Federal perspective on challenges to geothermal development in California. Sean began his remarks by noting that the real issue in California is access to Federal lands for resource development. Land access has not been at the top of the priority list for federal and state agencies in California. BLM began leasing of geothermal resources with the passage of the 1970 Federal Steam Act, then it switched from leasing mode to development mode and subsequently leasing has been placed on the back burner. There are currently 61,000 acres in the leasing process in California, and there have been no new leases granted since 1989. Furthermore, EIS' are more intensive now. Sean commented that priorities need to be changed to focus on geothermal leasing and development, and while it is not going to be easy - we need to work together to change the priorities. Sean concluded that one key to changing priorities is funding so that BLM efforts can be expended to focus on processing lease applications and updating lease documents.

Following lunch, Curtis Framel (DOE) moderated the next panel session entitled, "Approaches and Partnerships for California". Leading off this panel was Ted Clutter of the Geothermal Resource Council. Ted focused on three key themes in his remarks:

1) We need to attract capital investment dollars to the geothermal community;
2) We need to reinvigorate the geothermal workforce, and
3) Time is short, we need to get industry up and going quickly.

Next, V. John White of the Center for Energy Efficiency and Renewable Technologies addressed geothermal and the RPS. John began his presentation by highlighting the new renewable energy projects around the state. He then commented that early interventions and early discussions are vital to developing projects and overcoming environmental hurdles. He also said that the California RPS is

moving forward due to the recognition by the Energy Commission, the CPUC, and the utilities that is the law and needs to be implemented. In addition, municipalities are beginning to get involved in renewables for new procurement, especially in light of rising natural gas prices, as well as for resource diversity and recognition of carbon risks. He commented that the area that we really need to work together on is in transmission planning. In closing, he commented that looking forward, 30,000 MW of clean energy by 2020 has been proposed to the Western Governor's Association by the governors of California and New Mexico.

Next, Roger Hill provided the perspective of the GeoPowering the West Initiative to the panel. In his remarks, Roger first provided a summary of the current fuel mix of power generation sources in western US and detailed the resulting emissions from these sources and estimated load growth in the future -- all pointing towards an increased role for geothermal in the resource mix. He mentioned that geothermal power plants currently provide 5% of California's electricity needs. Then, he provided an overview of the processes for electricity production and direct use applications from geothermal resources, followed by a description of numerous potential direct use applications. He also provided a detailed summary of co-located geothermal resources in the state (low temperature) than can be developed in areas with a significant population base. Roger concluded his remarks by providing GPW's "vision of the future", which includes:

- Ready access to land for geothermal development;
- Thoroughly mapped and developed resources; and
- Cost competitive technologies.

Concluding this final panel session, Elaine Sison-Lebrilla provided the Energy Commission's vision for the development of the California Geothermal Collaborative. In her remarks she provided an overview of the structure envisioned for the collaborative, its purpose, and the timeline for implementation. In discussing the purpose of the collaborative, Elaine highlighted that it will address key issues important to the geothermal community, include all relevant stakeholders, will develop white papers on key issues and topics, and be product oriented. Elaine's presentation concluded the presentation portion of the Summit.

3. DISCUSSION SESSION SUMMARY

Following the presentations and panel sessions, George Simon moderated a discussion session that was designed to allow participants to highlight and discuss key issues facing the geothermal industry in California, and to identify issues and topics that should be addressed by the California Geothermal Collaborative. Prior to commencing the discussion session, George provided some additional information on the Collaborative offering a suggested timeline for its formation, defining a potential structure for the group, and set the goal of having it up and running by July -- with the first report card on its progress to be presented at the GRC annual meeting in late August. The following bullet points detail the topics and issues raised during the discussion session:

- The Collaborative needs to work with developers on studies of what they are doing, what the barriers are, and what needs to be done to overcome them;
- We need accountability -- checks and balances;
- The Collaborative needs to address the permitting process and work to streamline the process and prioritize efforts to get permits done;
- We need to document the geothermal potential in the state and update resource assessments and identify hidden resources;
- The Collaborative needs to be streamlined and product oriented;
- We need to look at costs of power purchase contracts;
- There has been no new markets, no exploration, and the industry has sat on its hands -- the real vision is, "How do we get the geothermal industry up to speed so that projects can happen?". The first step is dealing with short-term key issues.
- We need a coordinated transmission policy from the geothermal industry;
- We need an RPS initiation committee to ensure it is implemented on time;

- We need to get money into the states to facilitate leasing;
- The Collaborative should have a transmission study group (PDCI and Southern Control Region);
- Industry needs long-term contracts to facilitate projects;
- Industry needs PURPA type contracts to make projects happen, and it needs significant prices to ensure developers can make money on projects -- the market price needs to reflect the cost of geothermal development;
- We need to address the timeline to get projects done and how this fits into the RPS requirements (i.e., three years lead time is necessary to make sure that projects get done);
- A state-wide geothermal value proposition is needed in California; and
- The Collaborative should work to bring utilities together to find the best projects.

4. NEXT STEPS FOR DEVELOPMENT OF CALIFORNIA GEOTHERMAL COLLABORATIVE

Following the discussion session, a follow-on session was held to identify potential subcommittees under the California Geothermal Collaborative as well as to identify next steps. The potential subcommittees identified or topics to be explored by them were:

1) Exploration of alternative uses of geothermal resources - potential product could be a "Geothermal in California Roadmap" document highlighting what can be done with the resource and delineating all potential uses;
2) Define what the needs of industry are to allow it to move forward - be sure to include established companies with generation and companies that are in the exploration stage;
3) Transmission issues;
4) Exploration;
5) RPS monitoring
6) Cultural competency issues (i.e., Medicine Lake development on sacred burial grounds); and
7) Education and outreach.

The next steps identified for development of the California Geothermal Collaborative were:

1) Find someone to lead the Collaborative;
2) Put a structure to the Collaborative;
3) Identify and finalize initial subcommittees and develop strategies and products; and
4) Report on the Collaborative's progress at the GRC annual meeting.

The meeting was adjourned at 4:30 PM

Appendix A: Meeting Agenda

California Geothermal Summit

Sponsored by: California Energy Commission, and the US Department of Energy / GeoPowering the West Initiative

May 20, 2004
California Energy Commission Building
1516 Ninth Street
Hearing Room "A"
Sacramento, California 95814

ATTENDEES: GOVERNMENT AGENCY PERSONNEL, GEOTHERMAL INDUSTRY REPRESENTATIVES, ELECTRIC UTILITIES, TRIBAL ENTITIES, AND OTHER STAKEHOLDERS

PURPOSE: MOBILIZE THE NETWORK OF GEOTHERMAL ENERGY STAKEHOLDERS IN CALIFORNIA TO

- **MEET RENEWABLE PORTFOLIO STANDARD GOALS,**
- **ADDRESS LOCAL, REGIONAL AND INDUSTRY NEEDS, AND**
- **CREATE SUSTAINED ECONOMIC AND ENVIRONMENTAL BENEFITS TO CALIFORNIA.**

AGENDA

REGISTRATION • **DISTRIBUTION OF ATTENDEE SURVEYS ON POLICY AND RESEARCH NEEDS**		8:30-9:00 AM
WELCOMING REMARKS	ELAINE SISON-LEBRILLA, CALIFORNIA ENERGY COMMISSION	9:00-9:15 AM
US DOE GEOTHERMAL PROGRAM • **OVERVIEW, NATIONAL PERSPECTIVE, PROGRESS UPDATE, AND TIES TO CALIFORNIA**	ROY MINK, US DEPARTMENT OF ENERGY WASHINGTON, DC	9:15-9:30 AM
CALIFORNIA POLICY UPDATE	JOHN GEESMAN, COMMISSIONER, CALIFORNIA ENERGY COMMISSION	9:30-10:00 AM
CALIFORNIA RPS IMPLEMENTATION	TIM TUTT, CALIFORNIA ENERGY COMMISSION	10:00-10:15 AM
BREAK		10:15-10:30 AM
THE GEOTHERMAL RESOURCE IN CALIFORNIA	COLIN WILLIAMS, US GEOLOGICAL SURVEY JIM LOVEKIN, GEOTHERMEX	10:30-11:15 AM
PANEL SESSION I – GEOTHERMAL CHALLENGES AND OPPORTUNITIES IN CALIFORNIA		11:15-12:15 PM
	MODERATOR: GEORGE SIMONS, CALIFORNIA ENERGY COMMISSION	
INDUSTRY PERSPECTIVE	KARL GAWELL, GEOTHERMAL ENERGY ASSOCIATION	
TRIBAL PERSPECTIVES	ALAN MANDELL, OVCDC	
FEDERAL PERSPECTIVE	SEAN HAGERTY, BUREAU OF LAND MANAGEMENT	
• **LUNCH (ON YOUR OWN)** **RETURN ATTENDEE SURVEYS**		12:15-1:30 PM
PANEL SESSION II – CONNECTING GEOTHERMAL TO CALIFORNIA		1:30-2:15 PM
	MODERATOR: LAURIE TEN HOPE, CALIFORNIA ENERGY COMMISSION	
GRID OPERATOR PERSPECTIVE	TY LARSON, CAL ISO	
REGULATORY PERSPECTIVE	DAN ADLER, CALIFORNIA PUBLIC UTILITIES COMMISSION	
PANEL SESSION III – APPROACHES AND PARTNERSHIPS FOR CALIFORNIA		2:15-3:30 PM
	MODERATOR: CURTIS FRAMEL, US DEPARTMENT OF ENERGY, SEATTLE REGIONAL OFFICE	
GEOTHERMAL AND THE RPS	V. JOHN WHITE, CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLGIES	
GEOTHERMAL INDUSTRY PERSPECTIVE	TED CLUTTER, GEOTHERMAL RESOURCE COUNCIL	
DOE / GEOPOWERING THE WEST PERSPECTIVE	ROGER HILL, SANDIA NATIONAL LABORATORIES	
CALIFORNIA GEOTHERMAL COLLABORATIVE VISION	ELAINE SISON-LEBRILLA, CALIFORNIA ENERGY COMMISSION	
DISCUSSION & WRAP UP /CONCLUDING REMARKS	CURTIS FRAMEL, US DEPARTMENT OF ENERGY SRO GEORGE SIMONS, CALIFORNIA ENERGY COMMISSION	3:30-4:15 PM
ADJOURN		4:15 PM

Appendix B: Attendee List

Last Name	First name	Company name	Address	City	ST	Zip	E-mail Address	Phone Number	Fax Number
Aleman	Arturo	A Aleman & Associates	5960 South Land Park Drive # 356	Sacramento	CA	95822	aaleman01@comcast.net	(916) 213-3717	
Alvarez	Manuel	Southern California Edison	1201 K st Suite 1810	Sacramento	CA	95814	alvarem@sce.com	(916) 441-2369	(916) 441-4047
Ashen	Joe	Tatopani Energy Co.	1100 Glendon Ave, Suite 1700	Los Angeles	CA	90024	ja@our.ca	(310) 271-8273	
Barker	Benjamin		237 Dartmouth Way	Windsor	CA	95492	benbarker@earthlink.net	(707) 838-0238	(707) 838-0265
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Battocletti	Liz	Bob Lawrence & Associates, Inc.	345 S. Patrick Street	Alexandria	VA	22314	lbatto@att.net	(703) 836-3654	(703) 836-6086
Beebe	Bud	SMUD	P.O. Box 15830	Sacramento	CA	95852		(916) 432-5254	
Bennett	Janna	Kaiser Permanente					Janna.M.Bennett@kp.org		
Benoit	Dick						dickbenoit@hotmail.com		
Bloomquist	R. Gordon	Washington State University Energy Program	925 Plum Street S.E.,Town Square Building 4 ,P.O. Box 43165	Olympia	WA	98504	BloomquistR@energy.wsu.edu	(360) 956-2016	(360) 956-2030
Bourg	Joe	Millennium Energy LLC	26596 Columbine Glen Ave	Golden	CO	80401	millnrg@earthlink.net	(303) 526-2972	(303) 526-0331
Boyd	Tonya	Geo-Heat Center	3201 Campus Drive	Klamath Falls	OR	97601	boydt@oit.edi	(541) 885-1750	(541) 885-1754
Brophy	Paul	EGS Inc.	725 Farmers Lane #8	Santa Rosa	CA	95605		(707) 544-0955	(707) 544-4602
Brugman	John	Bibb and Associates, Inc.	35 N. Lake Ave. Suite 800	Pasadena	CA	91101	jrbrugman@bibbwest.com	(626) 396-3500	
Bruton	Carol	Lawrence Livermore National Laboratory		Livermore	CA	94550	bruton1@llnl.gov	(925) 423-1936	(925) 422-7438
Burdette	Dick	Nevada State Office of Energy	101 South Carson Street	Carson City	NV	89701	rburdette@gov.state.nv.us	(775) 684-5670	(775) 684-5689
Cagan	Danielle	Cagan Communications	1032 Irving St, Suite 602	San Francisco	CA	94122	danielle@cagancommunications.com	(415) 665-6678	(415) 665-6703
Campion	Linda	CA Division of Oil, Gas, and Geothermal Resources		Sacramento	CA	95814	Linda.Campion@conservation.ca.gov	(916) 324-1268	(916) 323-0424
Carey	Dwight	Environmental Management Associates, Inc.		Brea	CA	92821	dlcarey@emacorp.com	(714) 529-3695	(714) 529-8543
Carter	Anna	Geothermal Support Services	5467 Petaluma Hill Road	Santa Rosa	CA	95404	annacartr@aol.com	(707) 585-2111	(707) 812-5369
Clay	Joan	Anderson Springs Community Alliance		Middletown	CA	95461	jeff@andersonsprings.org	(707) 569-5616	
Clay	Allen	Anderson Springs Community Alliance		Middletown	CA	95461		(707) 987-0243	
Clayton	Janine	USDA Forest Service	1323 Club Drive	Vallejo	CA	94592	jclayton@fs.fed.us	707-562-8968	
Combs	Jim	Geo Hills Associates LLC	2445 East Lakeridge Shores	Reno	NV	89509	jimjeany@ix.netcom.com	(775) 827-1960	(775) 827-1960
Coyner	Alan	Nevada Division of Minerals	400 W. King St. #106	Carson City	NV	89703	acoyner@govmail.state.nv.us	(775) 684-7047	(775) 684-7052
Dellinger	Mark	Lake County	230A Main Street	Lakeport	CA	95453	markd@co.lake.ca.us	(707) 263-0119	(707) 263-3836
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Dracker	Ray	Center For Resource Solutions	Presidio Building 97	San Francisco	CA	94129	rdracker@resource-solutions.org	(415) 561-2135	
Fiorello	Marlo	Grid USA							
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Gold	David								
Gospe	Jeffrey	Anderson Springs Community Alliance		Middletown	CA	95461	jeff@andersonsprings.org	(707) 569-5616	
Grabowski	Richard	BLM	2800 Cottage Way	Sacramento	CA	95825	Richard_Grabowski@ca.blm.gov	(916) 978-4361	(916) 978-4389
Hagerty	Sean	U.S.D.I Bureau of Land Management	2800 Cottage Way, Rm W-1834	Sacramento	CA	95825	Sean_Hagerty@ca.blm.gov	(916) 978-4375	(916) 978-4389
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Hassler	Ron	I'SOT	P.O. Box 125	Canby	CA	96015	ronh@hdo.net	(530) 233-5151	(530) 233-5306
Hill	Roger	Sandia National Laboratories		Albuquerque	NM	87185	rrhill@sandia.gov	(505) 844-6111	(505) 844-3952
Hodgson	Susan	California Division of Oil, Gas, and Geothermal Resources		Sacramento	CA	95814	cosmos@dcn.org	(916) 445-9886	(916) 323-2731
Hoops	Richard	BLM_Nevada	1340 Financial	Reno	NV	89520	rhoops@nv.blm.gov	(775) 861-6568	
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Johnson	Elizabeth	California Division of Oil, Gas, & Geothermal Resources		Sacramento	CA	95814	ljohnson@consrv.ca.gov	(916) 323-1786	
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Lamebull	James	Ft. Bidwell Indian Community Council		Ft. Bidwell	CA	96112		(530) 279-6194	(530) 279-6288
Long	Mike	POWER Engineers, Inc.	PO Box 1066,3940 Glenbrook Drive	Hailey	ID	83333	mlong@powereng.com	(208) 788-0572	(208) 788-9249
Long	Jane	University of Nevada	427 Laxalt Mineral Engineering	Reno	NV	89557	jcslong@worldnet.att.net	(775) 784-6991	(775) 784-1833
Lovekin	Jim	GeothermEx, Inc	5221 Central Ave., Suite 201	Richmond	CA	94804	mw@geothermex.com	(510) 527-9876	(510) 527-8164
Lund	John	Geo-Heat Center	3201 Campus Drive	Klamath Falls	OR	97601	lundj@oit.ed	(541) 885-1750	(541) 885-1754
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McQuanttie	Missy	Grid USA							
Medrano	Meriel	Anderson Springs Community Alliance		Middletown	CA	95461	Merielm1@earthlink.net	(707) 987-0277	
Merrick	Dale	I'SOT	P.O. Box 125	Canby	CA	96015	merrick@hdo.net	(530) 233-5151	(530) 233-5306
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Appendix C: Questions & Answers Summary
California Geothermal Summit
California Energy Commission
Hearing Room A
May 20, 2004

9:15 – 9:30 US DOE Geothermal Program, Roy Mink, US DOE
None

9:30 – 10:00 California Policy Update, John Geesman, Commissioner, Energy Commission
Q: More progressive approach to transmission, progress to get better integrated planning, and clear path to closing on transmission contracts.
A: Progress on planning…other states, SW states STEP Planning effort…shown ability to better come to grips with crossing state lines. Made substantial progress. Energy Commission attempting to occupy larger space and pushing state agencies for more aggressive approach for utilities to actually land bank right of way….limited to right of way investments within a five year expected use time horizon…In state, big black hole. Several projects in south attracted attention, attempting to rationally calculate cost. Energy Commission last fall in IEPR recommended this area to be completely revised.

Q: Geothermal industry not opposed to wind, is the Energy Commission moving forward in implementing some industry suggestions.
A: All are under review. As to when we actually make meaningful progress, we would like to see in planning process is expansion in selection process. Been greater interest in economic projects. Not reliability criteria…but cost to rate payer. Led ISO down a path of excessive reliance on a black box model. Regulatory staying power at the PUC. Like to see state transmission plan….on qualitative strategic criteria to determine when and where lines get built. Need to invest a lot more money in transmission. Severe risk of under investment.

Q: Geothermal projects throughout the state at 49.9 MW, Energy Commission regulations that full resource be proven. Some have ability to increase capacity…can we expect jurisdiction issues to rise up if exceed 50 MW
A: Depends on type of license project had when it was constructed. Case by case assessment. Local permit? Something that trips over our threshold? Advise, what's going to work in terms of jurisdictional issues.
Q: What can the energy commission do to get more balance?
A: We do have a fairly balanced approach. We carry statutory mandate with rigorous environmental standards. Where our jurisdiction not perceived to be a help, go through local.

Q: To grow new resources, takes capital…. change going on with merchant type stuff…need to rely more on utility type model….which takes capital. What's the state of CA going to do to raise capital?
A: Push investor owned utilities into 10 year or longer procurement contracts. Trying to provide a better climate of regulatory uncertainty. (Renewables Portfolio Standard)

Q: LADWP wind power project at 80 MW….50 MW cap is something whose time is passing…should be increasing to 100MW?
A: Look at legislature, not going to get any change. Until demonstrated history of problems, legislature will not consider any change.

Q: Stress on geothermal being competitive with fossil fuels….long term integrated resource planning…we'd find we are competitive. Is there something that the Energy Commission can come to grips with that issue?
A: That legislation that made the decision with come out with market price referent to take into account hedging value. Energy Commission has made an effort at quantifying externalities….benefit of reduced CO_2 emissions. No projections thus far have been able to hold up under litigious review. At some point, one analysis will, but not so far. Cost of generation report model, Energy Commission found geothermal facility to be the least cost facility.

10:00 – 10:15 California RPS, Tim Tutt, Energy Commission
None

10:30 – 10:45 Connecting Geothermal to CA, Dan Adler, CPUC
Q. Remote geothermal resource production.
A: Geographic resource, can't move like fossil resources.

Q: Energy Commission decision to allocate system lime losses to generate
A: Issue has not been engaged very well so far. Consistency in lime loss application. Lime losses are real, can't be denied….have to be accounted for.

Q: Geothermal has advantage of high capacity…. compare to production of intermittence renewables
A: Capacity is to be modified and accounted for by technology. Very valuable resource. Transmission would allocate the entire of the cost to the generator.

Q: Out of state projects, how would transmissions costs be factored in.
A: Transmission facility upgrade is needed, a component would have to be extracted and added as another component.

10:45 – 11:30 The Geothermal Resource in CA, Colin Williams, US Geological Survey
Q: Cascades and Oregon were left out.
A: Specific scope was for CA and NV.

Q: Geysers in Imperial Valley, where's Coso?
A: Didn't feel like it has an abundance of incremental capacity.
.
Q: Breakdown the 4000 MW into the four groups identified.
A: Big chunk of 3000 comes from A.

Q: Definitions of reserves?
A: Identified, quantifiable resources, average $3100/kw installed.

Q: Future benchmark, capital cost only?
A: Up front capital cost only.

Q: Thermal anomaly in Mojave Desert.
A: Merits further research. Transmission not a major component, the more remote the project is, the greater the impact.

Q: Include transmission in calculations, was a different transmission cost used in each?
A: Analysis was per area.

11:30 – 12:30 Panel Session I – Geothermal Challenges and Opportunities in California
Karl Gawell: none

Sean Hagerty:
Q: How much of your budget is going towards litigation at Medicine Lake?
A: Should not have an impact on leasing. Several hundred thousands of dollars per year.

Q: Manage leasing process?
A: Lease process to approve a power plant is minimal.

Q: How do they (Forest Service) deal with logging operations and environmental documentation process.
A: Trying to get a collaborative effort is difficult.

Q: How are priorities set?
A: Top management and down makes decisions.

Issues:
1. A Power Authority bond authority
2. 10-Year Contract Term Requirement
3. Overall CA transmission problems: constraints, spurs, congestion, contractual loading
4. Dynamic scheduling vs. must-run (true-up period): Overlook specific characteristics of Geo power plants; dynamic scheduling on a monthly basis rather than hourly
5. PDCI/Substation Committee
6. Market value of geothermal parity--incentives
7. Allocation of system line loses
8. Define new or hidden geothermal resources beyond surface expressions
9. Water and relationship in developing geo resources.
10. Need for public education.
11. Price point competition—Different resource types competing against each other

1:45 – 3:00 Panel Session II – Approaches and Partnerships for California

Ted Clutter:

None

John White:

Q: New administration on renewable energy compared to old administration

A: New Admin is Action oriented; renewables are the centerpiece; letter for 30,000 MW of clean energy; meet or exceed RPS goals; more jobs

Q. Labor

A. Labor is a partner with construction contractors. Unions may want to work with contractors within…

Q. Opposition at Medicine Lake; Raise potential of Nevada resources

A. Long-term in the West; recognize role of regional development

Q. Amend RPS

A. Bill to make technical clean-up; unsure of bill expansion for RPS; clarify rules

Q. Medicine Lake-No body actually lives at Medicine Lake (Comment)

Q. Transmission in Sierra area

A. Interagency cooperation

Roger Hill:

None

Elaine Sison-Lebrilla:

None